

Applicants: Mulligan et al.
Serial No. 09/997,753

REMARKS

The drawings were objected to because of the electrodes present d in claim 3. Applicant respectfully points out that the "external device 121" illustrated in Figure 2 may include, in certain embodiments, external electrodes. Note page 10, lines 8-14, which include a discussion of external electrodes providing data to the IMD via, e.g., telemetry circuit 120. As such, Applicant respectfully asserts that the objection has been obviated.

Claims 1-4 and 6 were rejected under 35 USC 102(b) as being anticipated by Cohen. Applicant respectfully traverses this rejection. As the Examiner is well aware, for a proper rejection under this section the cited reference must teach each and every claimed element. Contrary to the Examiner's assertion, Cohen does not teach a processing circuit that receives EGM signals and ventricular pressure signals and determines therefrom MPAP. As such, the rejection is unsupportable and must be withdrawn.

Cohen places pressure sensors in a number of locations to determine actual pressure in that location. Cohen teaches placing a pressure sensor in the pulmonary artery (FIG. 2I). Thus, if Cohen uses mean pulmonary arterial pressure (MPAP), then MPAP is measured directly. There is absolutely no teaching of using any other measured pressure to derive MPAP. Furthermore, the EGM or ECG data is not used in any way to measure or derive pressure data in Cohen. In fact, the only use for such timing data is to determine *when* to look at the pressure data. That is, if the heart rate, as determined by an R-wave sensor exceeds a threshold, then pressure data is considered. Thus, the rate data merely serves as a trigger as to when to consider pressure data. When the rate is excessive and the directly measured pressure data indicates hemodynamic compromise, the appropriate therapy is delivered.

Should the Examiner choose to maintain this or a similar rejection, Applicant respectfully requests that specific portions of the reference be indicated that teach a) determining MPAP as opposed to measuring it directly; b) determining MPAP based on measured ventricular pressure; and c) determining

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MPAP from both EGM data and ventricular pressure data as claimed. None of this is disclosed in Cohen and as such, the rejection must be withdrawn.

Various other claims were rejected under 35 USC 103(a) as being obvious in view of Cohen and selected additional references. None of the additional references address the deficiencies in Cohen noted above, and as such, these rejections must be withdrawn as well.

Interestingly, the Examiner acknowledged the above noted deficiencies in paragraph 11 of the Office Action and still issued the rejection under section 102. In particular, the Examiner states that Cohen does not disclose "the use of the EGM signal and the pressure value to determine MPAP." As this is clearly claimed in claim 1 (processing circuit receives pressure and EGM signal and determines *therefrom* MPAP), the 102 rejection is improper.

The Office Action then introduces the Carney reference and the Examiner states, without specific support in the reference, that pulmonary arterial pressure is "determined" by "using" EGM, pressure values from the R wave, systolic and diastolic times, etc. The Examiner's motivation to combine these references is that Carney provides a "good estimate" of that pressure. Since Cohen measure MPAP *directly* it is unclear to Applicant how moving to a "good" estimate provides a motivation to modify the Cohen teachings.

Carney does not teach what the Examiner asserts it does. Carney does not derive any value; rather, the reference teaches directly measuring ventricular pressure. It was noted that at certain, very specific times, ventricular pressure is likely to approximately equal pressure in the pulmonary artery. Directly measuring a value and *assuming* it equals another value is not a method of determining or deriving that value as claimed.

Furthermore, the use of EGM data in Carney is similar to that of Cohen. It merely acts as a trigger as to *when* to look at directly measured pressure values. Neither references teaches using EGM data to determine, derive or calculate a mean pulmonary arterial pressure, let alone using such EGM data in combination with measured ventricular pressure data to determine, derive or calculate a mean pulmonary arterial pressure.

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Thus, even if there references were combined the resultant combination does not teach the presently claimed invention. Furthermore, as indicated, there is no valid or legally sufficient motivation to make such a combination in the first place. As such, the rejections are unsupported and must be withdrawn.

Respectfully submitted,

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Date

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